

ABSTRACT

A method of grafting galactomannan-type polysaccharide polymers, preferably guar, to a functional group by irradiation with high energy electron beams in the presence of an unsaturated monomer-comprising the described functional group. The method may include the depolymerization of the grafted polymer to a pre-selected low molecular weight. The preferred galactomannans for treatment according to this method are guar gum, guar splits and hydroxypropyl guar. In a preferred embodiment the guar gum is also depolymerized, preferably to a molecular weight of below about 700,000 Daltons, and most preferably to a molecular weight of between about 100,000 Daltons to about 250,000 Daltons. The depolymerized guar most preferably has a polydispersity of less than about 3.0 and is useful in oil well fracturing to enhance oil production.